

Trend Study 9-19-00

Study site name: Mosby Mountain South.

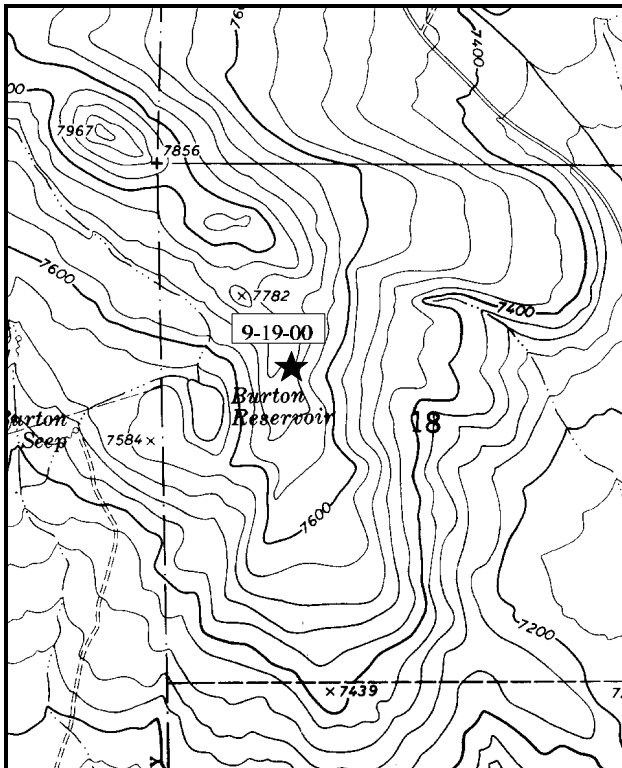
Range type: Mixed Mountain Brush.

Compass bearing: frequency baseline 167°M.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

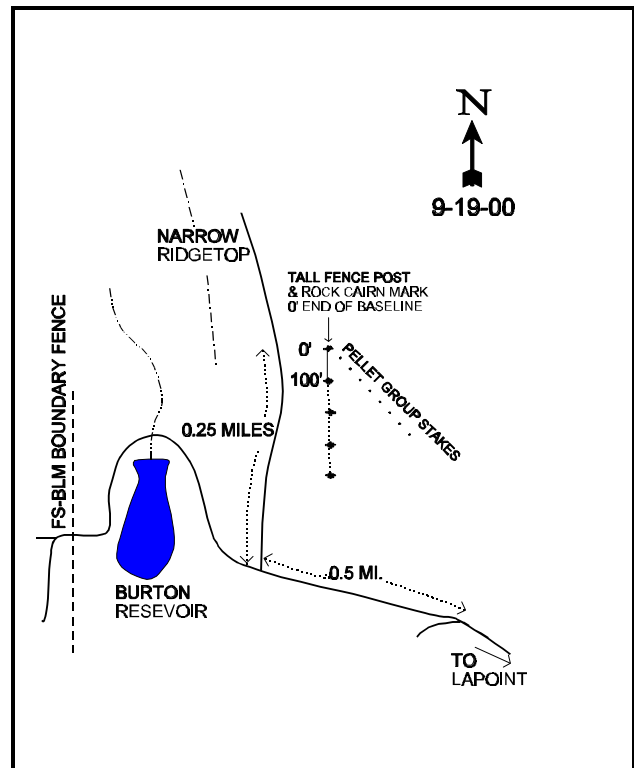
LOCATION DESCRIPTION

Just east of Lapoint, turn north from highway 121. Go 6.9 miles to a fork, keep left toward Mosby Mountain. Proceed 4.8 miles and turn left onto a dirt road heading west. Go 0.15 miles to a 3-way intersection, bear left on the main road. Continue 0.45 miles to a fork, stay left. Go 0.2 miles to another fork, stay to the right. Go 0.5 miles to an intersection on the ridge above Burton Reservoir. Drive 0.25 miles north on a very rocky road to the study site. A tall fencepost which marks the location of a pellet group transect is also the 0-foot baseline stake. It is marked by browse tag #7870. The frequency baseline stakes are short green fenceposts.



Map Name: Lake Mountain

Township 3S Range 19E Section 18



Diagrammatic Sketch

UTM 4490148.529 N, 598272.521 E

DISCUSSION

Trend Study No. 9-19 (12-8)

The Mosby Mountain South study was established in 1988 to sample a key area that was missed in 1982. The site is located on a narrow ridge top which drops off sharply to Burton Reservoir to the west and a sagebrush and pinyon-juniper valley to the east. The slope at the site is gentle (2-3%), with a southeast aspect. Elevation is about 7,600 feet. A large fire burned the entire area after the initial reading in 1988, where much of the sagebrush was eradicated. Springs are common in the area and most have been developed for cattle. Evidence of sage grouse was observed on this site during study establishment. Sage grouse droppings were sampled in the pellet group transect that was read in 2000. According to Forest Service personnel, the area between this study and study #9-14 (Red Pine Canyon) is an important wintering area for several hundred elk. Pellet group transect data taken directly on the site in 2000 estimate light use for both elk and deer. Elk use is estimated at 15 days use/acre (36 edu/ha) and deer use at 7 days use/acre (17 ddu/ha). This estimated light use may be due to the fact that the past several winters have been mild and animals may not have had to use the site as heavily as in the past. Quadrat frequency of deer and elk pellet groups is much lower in 2000 compared to 1995. Cattle were on the site, as well as the surrounding area in 2000 when the site was read. However, it was noted that most of the cattle were bunched closer to the reservoir about ½ mile away. Cattle use directly on the site is estimated at 9 cow days use/acre (22 cdu/ha).

The soil is very rocky and has a sandy loam texture. Rocks of all sizes are distributed throughout the soil profile and continuously over the surface. They are cobble type rocks from alluvial deposits off of the Uinta mountains. Effective rooting depth is estimated at about 7 inches due to the rocky profile. However, due to the presence of deep rooted shrubs, shrub roots apparently are able to penetrate down through the rock to deeper levels. The estimate of about 17% rock cover was moderately high in 1988, but this increased after the fire to 26% in 1995 and 2000. There was a considerable amount of litter cover (67%) in addition to the extensive shrub cover in 1988, providing good soil protection. Litter cover declined after the fire. It is estimated at 46% in 1995, decreasing to 37% in 2000. Percent bare ground was low at 4% in 1995, increasing to 10% in 2000.

Mountain big sagebrush is currently the dominant shrub on this site as it contributes 32% of the total browse cover. The population appeared stable in 1988 with an estimated 7,533 plants per acre. The proportion of decadent plants (34%) was offset by the high proportion of young (32%) and seedlings (3%). Mountain big sagebrush cover was estimated at 20% in 1988. At this elevation, the sagebrush showed evidence of only light to moderate hedging. Black sagebrush was abundant in 1988 and density increased where soils were more shallow. It showed only light to moderate hedging. Bitterbrush and serviceberry were scattered throughout the area at relatively lower densities, although bitterbrush was more abundant. These species were utilized to a greater extent by mule deer and the majority of the plants appeared heavily hedged. The most preferred browse species showed evidence of stress from drought and insect damage, while the big sagebrush appeared vigorous.

After the fire, density of all shrub species declined but none were lost. Mountain big sagebrush density dropped from 7,533 plants/acre before the fire, to 1,380 in 1995 and 1,280 in 2000 following the fire. Some of this difference could also be the result of the greatly increased sampled size used following the 1988 reading which better estimates shrub populations that have clumped and/or discontinuous distributions. Seedlings and young plants have been few since the fire. Percent decadency was high in both 1988 (34%) and 1995 (30%), but greatly decreased in 2000 to only 5%. Vigor has been good for all readings. Use has decreased since 1995. Currently use is light to moderate. Leader growth averages about 3 inches in 2000, but seed production is high on big sagebrush.

Black sagebrush is estimated at 240 plants/acre and 120 plants/acre in 1995 and 2000 following the fire. Use remains moderate to heavy following fire. Percent decadency has steadily declined from a high of 56% in 1988 (drought year and pre-fire) to 17% in 1995, and 0% in 2000. Bitterbrush density has remained about the same

both before and after the fire. Currently ('00), bitterbrush is estimated at 380 plants/acre, with high recruitment (21%), good vigor, and no decadency. Use is mostly heavy. This should be watched in the future as the low density may accentuate the heavy use. Average leader growth is about 3 inches in 2000, with moderate seed production on bitterbrush. Serviceberry is currently estimated at 220 plants/acre. The entire population in 1995 and 2000 consist of mature plants that show moderate to heavy use.

During the initial reading in 1988, a significant amount of cheatgrass in the understory was reported. In 1995, cheatgrass had the highest nested frequency of any species and accounted for 21% of the grass cover. With drought in 2000, cheatgrass was sampled in only 2 quadrats. Perennial grasses consist of a mix of native and seeded species and include: several wheatgrass's (crested, thickspike, intermediate and bluebunch); needle-and-thread; squirreltail; Sandberg, Kentucky, and mutton bluegrass; and a Carex. Crested wheatgrass and needle-and-thread are the dominate species. Both remained at stable frequencies in 2000. As a group, perennial grasses decreased in sum of nested frequency in 2000 by 17%, but increased in cover from 17% to 19%. Utilization was moderate to heavy on most species in 2000.

Forbs contribute about 25% of the total vegetative cover at the site in 2000. Perennial species are moderately diverse, but only hairy goldaster is common. This species provides nearly 7% average cover in 2000, which significantly increased in nested frequency. Silvery lupine is also moderately abundant. Annual forbs are very infrequent, especially in 2000 with the dry conditions. Perennial forbs slightly increased in sum of nested frequency in 2000, which is surprising as perennial forbs have decreased on most other sites in 2000 due to drought.

1995 TREND ASSESSMENT

The soil trend is stable. Litter cover declined due to the fire but there is still adequate soil protection. Currently, percent bare ground is only 4%. The browse trend is down with reduced densities of all species encountered in 1988. The key species, mountain big sagebrush, declined in density and has a moderately high rate of decadency (34%). This species is not tolerant of fire, as some of the other species are. Recruitment is also poor with no seedlings encountered and only 140 young plants/acre were estimated. Vigor was good on most other browse, with the density expected to eventually increase in time. Trend for the preferred bitterbrush is slightly up due to a consistent mature population, low decadency, reduced heavy use, and more tolerance to fire. Trend for the herbaceous understory is up with increased sum of nested frequency for grasses and forbs.

TREND ASSESSMENT

soil - stable (3)

browse - down due to fire, but will increase in time (1)

herbaceous understory - up (5)

2000 TREND ASSESSMENT

Trend for soil is slightly down. Bare soil increased from 4% to 10%, while litter cover decreased from 46% to 37% in 2000. Rock cover remains high at 26%. The ratio of protective ground cover (vegetation, litter, and cryptogams) to bare soil decreased from 6:1 to 3:1. Trend for browse is stable. All of the key and preferred browse species show stable to slightly increasing populations in 2000. Recruitment is low for all species except bitterbrush, but all species show low and improving decadency rates and good vigor. Trend for the herbaceous understory is stable. Sum of nested frequency of perennial grasses as a group decreased in 2000, but the dominant species, crested wheatgrass and needle-and-thread, remained at fairly stable frequencies. Also, cheatgrass was nearly non-existent in 2000 due to drought. Sum of nested frequency of perennial forbs actually slightly increased with drought in 2000 which offset some of the losses of the grasses. This increase is the exception in this unit.

TREND ASSESSMENT

soil - slightly down (2)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 09 , Study no: 19

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
G	Agropyron cristatum	a-	b ₁₄₄	b ₁₅₉	-	54	61	3.26	5.83
G	Agropyron dasystachyum	a-	cb ₇₄	b ₄	-	26	3	1.99	.04
G	Agropyron intermedium	a-	b ₃₂	a ₂	-	11	1	.32	.00
G	Agropyron spicatum	b ₉₃	a ₃₁	a ₁₆	41	12	5	.61	.36
G	Bouteloua gracilis	b ₂₇	a ₃	a-	14	1	-	.03	-
G	Bromus tectorum (a)	-	b ₂₉₈	a ₅	-	91	2	3.60	.03
G	Carex spp.	7	9	11	4	4	7	.02	.10
G	Poa fendleriana	-	4	22	-	2	6	.03	.30
G	Poa pratensis	ab ₂₅	b ₄₀	a ₅	10	16	2	.88	.18
G	Poa secunda	b ₆₆	a ₂	a ₁₈	31	1	6	.00	.30
G	Sitanion hystrix	b ₁₅₅	a ₄₀	a ₁₈	64	18	8	.31	.51
G	Sporobolus cryptandrus	a-	ab ₂	b ₇	-	1	3	.00	.04
G	Stipa comata	a ₃₁	b ₁₈₁	b ₂₀₅	14	66	68	5.77	11.26
Total for Annual Grasses		0	298	5	0	91	2	3.60	0.03
Total for Perennial Grasses		404	562	467	178	212	170	13.25	18.95
Total for Grasses		404	860	472	178	303	172	16.86	18.99
F	Allium spp.	-	5	-	-	2	-	.01	-
F	Arabis spp.	7	3	2	4	1	1	.00	.03
F	Artemisia ludoviciana	-	-	3	-	-	1	-	.15
F	Astragalus purshii	b ₈	a-	a-	3	-	-	-	-
F	Aster spp.	a-	ab ₄	b ₁₀	-	2	5	.01	.10
F	Balsamorhiza hookeri	a-	b ₃	a-	-	3	-	.04	-
F	Chenopodium leptophyllum (a)	-	b ₁₄	a-	-	5	-	.02	-
F	Collomia linearis (a)	-	b ₂₉	a-	-	15	-	.07	-
F	Comandra pallida	3	-	1	1	-	1	-	.03
F	Collinsia parviflora (a)	-	8	2	-	3	1	.01	.00
F	Cryptantha spp.	-	1	-	-	1	-	.00	-
F	Descurainia pinnata (a)	-	b ₈	a-	-	3	-	.01	-
F	Draba spp. (a)	-	1	-	-	1	-	.03	-
F	Erigeron flagellaris	-	1	2	-	1	2	.03	.03

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
F	<i>Eriogonum racemosum</i>	_b 25	_{ab} 6	_a 3	10	4	2	.16	.06
F	<i>Heterotheca villosa</i>	_a 18	_b 142	_c 171	9	59	68	4.69	6.92
F	<i>Hymenoxys acaulis</i>	2	1	-	2	1	-	.00	-
F	<i>Lappula occidentalis</i> (a)	-	3	-	-	2	-	.01	-
F	<i>Lepidium densiflorum</i> (a)	-	_b 44	_a 2	-	21	1	.15	.03
F	<i>Lithospermum</i> spp.	-	-	4	-	-	2	-	.01
F	<i>Lupinus argenteus</i>	_b 13	_a 41	_c 72	5	21	32	1.75	2.72
F	<i>Oenothera pallida</i>	1	-	-	1	-	-	-	-
F	<i>Penstemon</i> spp.	_{ab} 5	_b 5	_a -	2	3	-	.04	-
F	<i>Petradoria pumila</i>	_b 8	_{ab} 3	_a -	4	1	-	.15	-
F	<i>Phlox longifolia</i>	_b 9	_a -	_a -	3	-	-	-	-
F	<i>Polygonum douglasii</i> (a)	-	_b 29	_a -	-	14	-	.07	-
F	<i>Sedum lanceolatum</i>	1	-	-	1	-	-	-	-
F	<i>Senecio multilobatus</i>	1	4	8	1	2	3	.01	.06
F	<i>Sphaeralcea coccinea</i>	5	11	2	2	4	2	.09	.01
F	<i>Taraxacum officinale</i>	-	3	-	-	2	-	.01	-
F	<i>Tragopogon dubius</i>	_a -	_b 10	_a -	-	7	-	.06	-
Total for Annual Forbs		0	136	4	0	64	2	0.39	0.03
Total for Perennial Forbs		106	243	278	48	114	119	7.09	10.14
Total for Forbs		106	379	282	48	178	121	7.49	10.18

Values with different subscript letters are significantly different at $\alpha = 0.10$

BROWSE TRENDS --

Herd unit 09 , Study no: 19

T y p e	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Amelanchier utahensis	10	11	1.94	2.63
B	Artemisia nova	7	4	.18	.03
B	Artemisia tridentata vaseyana	33	34	2.27	3.00
B	Chrysothamnus nauseosus graveolens	0	0	-	.03
B	Chrysothamnus viscidiflorus lanceolatus	3	0	.15	-
B	Eriogonum heracleoides	3	6	.66	.41
B	Gutierrezia sarothrae	12	23	.31	.63
B	Opuntia spp.	19	24	.41	.41
B	Pediocactus simpsonii	6	3	.45	.03
B	Purshia tridentata	14	19	1.16	2.05
Total for Browse		107	124	7.55	9.25

BASIC COVER --

Herd unit 09 , Study no: 19

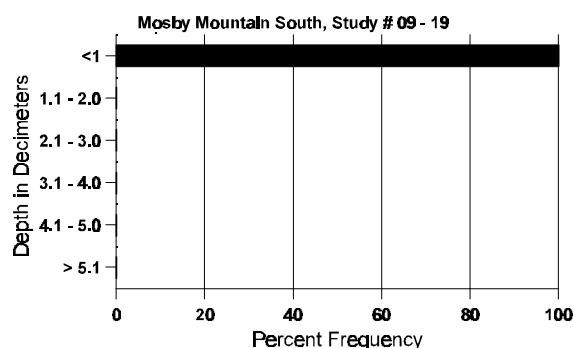
Cover Type	Nested Frequency		Average Cover %		
	'95	'00	'88	'95	'00
Vegetation	374	347	7.50	40.06	42.06
Rock	323	280	16.50	26.87	26.17
Pavement	90	160	1.00	2.96	5.90
Litter	383	375	67.00	46.25	37.31
Cryptogams	23	2	0	.12	.15
Bare Ground	127	230	8.00	3.95	10.04

SOIL ANALYSIS DATA --

Herd Unit 09, Study # 19, Study Name: Mosby Mountain South

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
6.83	67.4 (8.66)	6.6	72.0	13.4	14.6	8.0	19.6	208.0	0.6

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 09 , Study no: 19

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'95	'00	'00	'00
Rabbit	3	13	165	N/A
Grouse	-	1	35	N/A
Elk	30	12	191	15 (37)
Deer	19	6	87	7 (17)
Cattle	1	7	104	9 (22)

BROWSE CHARACTERISTICS --

Herd unit 09 , Study no: 19

Form Class (No. of Plants)																			Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
A	Y																									
G	R	1	2	3	4	5	6	7	8	9	1	2	3	4												
E																										
Amelanchier utahensis																										
Y	88	1	2	6	-	-	-	-	-	-	5	-	4	-	600			9								
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0								
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0								
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0								
	95	2	7	2	-	-	-	-	-	-	10	-	1	-	220	25	34	11								
	00	3	1	1	1	4	1	-	-	-	11	-	-	-	220	27	47	11								
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0								
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2								
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1								
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>												
'88		22%				67%				44%				-63%												
'95		64%				18%				09%				+ 0%												
'00		45%				18%				00%																
Total Plants/Acre (excluding Dead & Seedlings)														'88	600	Dec:	-									
														'95	220		-									
														'00	220		-									

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia nova																		
S	88	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	88	12	3	-	-	-	-	-	-	-	15	-	-	-	1000		15	
	95	-	2	-	-	-	-	-	-	-	2	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	88	1	3	-	-	-	-	-	-	-	4	-	-	-	266	12	20	
	95	-	4	1	-	1	2	-	-	-	8	-	-	-	160	7	18	
	00	1	1	2	2	-	-	-	-	-	6	-	-	-	120	18	28	
D	88	8	14	2	-	-	-	-	-	-	22	-	1	1	1600		24	
	95	-	1	1	-	-	-	-	-	-	2	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'88		47%				05%				05%				-92%				
'95		67%				33%				00%				-50%				
'00		17%				33%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'88	2866	Dec:	56%			
												'95	240		17%			
												'00	120		0%			
Artemisia tridentata vaseyana																		
S	88	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
Y	88	14	22	-	-	-	-	-	-	-	36	-	-	-	2400		36	
	95	5	1	1	-	-	-	-	-	-	7	-	-	-	140		7	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	88	23	14	1	1	-	-	-	-	-	38	1	-	-	2600	14	21	
	95	12	29	-	-	-	-	-	-	-	41	-	-	-	820	10	16	
	00	34	21	-	3	-	3	-	-	-	61	-	-	-	1220	14	23	
D	88	18	17	3	-	-	-	-	-	-	36	-	1	1	2533		38	
	95	-	20	1	-	-	-	-	-	-	20	-	-	1	420		21	
	00	1	1	-	-	1	-	-	-	-	2	-	-	1	60		3	
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	900		45	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'88		47%				04%				02%				-82%				
'95		72%				03%				01%				- 7%				
'00		36%				05%				02%								
Total Plants/Acre (excluding Dead & Seedlings)												'88	7533	Dec:	34%			
												'95	1380		30%			
												'00	1280		5%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Ceanothus fendleri																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	9	31	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	10	41	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	0		-			
												'00	0		-			
Chrysothamnus nauseosus graveolens																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	24	24	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	27	41	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	0		-			
												'00	0		-			
Chrysothamnus viscidiflorus lanceolatus																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	3	-	-	-	-	-	-	-	-	-	3	-	-	60	12	17	3
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	7	17	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	60		-			
												'00	0		-			
Eriogonum heracleoides																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	7	-	-	-	-	-	-	-	-	-	7	-	-	140	5	22	7
	00	8	1	-	-	-	-	-	-	-	-	9	-	-	180	3	17	9
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%			+22%							
'00		11%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	140		-			
												'00	180		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	2	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	88	29	-	-	-	-	-	-	-	-	29	-	-	-	1933	6	6	29
	95	21	-	-	-	-	-	-	-	-	21	-	-	-	420	7	9	21
	00	99	-	-	-	-	-	-	-	-	99	-	-	-	1980	6	8	99
D	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%			-78%							
'95		00%			00%			00%			+78%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	1999	Dec:	3%			
												'95	440		0%			
												'00	1980		0%			
Opuntia spp.																		
S	88	9	-	-	-	-	-	-	-	-	9	-	-	-	600		9	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	88	25	-	-	-	-	-	-	-	-	23	-	2	-	1666		25	
	95	7	-	-	-	-	-	-	-	-	7	-	-	-	140		7	
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
M	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66	2	10	1
	95	22	-	-	-	-	-	-	-	-	22	-	-	-	440	3	10	22
	00	33	-	-	3	-	-	-	-	-	36	-	-	-	720	2	10	36
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			08%			-67%							
'95		00%			00%			00%			+28%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	1732	Dec:	0%			
												'95	580		0%			
												'00	800		3%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Pediocactus simpsonii																		
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	2	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	4	-	-	-	-	-	-	-	-	-	-	-	-	80	2	4	
	00	3	-	-	-	-	-	-	-	-	-	-	-	-	60	1	3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%			-50%							
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	120		-			
												'00	60		-			
Purshia tridentata																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	88	1	-	1	-	-	-	-	-	-	2	-	-	-	133		2	
	95	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	1	3	-	-	-	-	-	-	4	-	-	-	80		4	
M	88	-	-	5	-	-	-	-	-	-	5	-	-	-	333	12	5	
	95	2	6	5	-	-	2	-	-	-	15	-	-	-	300	7	15	
	00	-	1	5	-	-	8	1	-	-	15	-	-	-	300	7	15	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			86%			00%			-31%							
'95		44%			44%			00%			+16%							
'00		11%			84%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	466	Dec:	-			
												'95	320		-			
												'00	380		-			